

Appendix 1: Search terms

Search strategies for the selected developments were constructed from the search domains as follows:

- Ceramic-on-Ceramic Bearing AND THR AND comparative study
- Modular femoral necks AND THR AND comparative study
- Monoblock acetabular components: AND THR AND comparative study
- High-flexion AND TKR AND comparative study
- Gender-specific AND TKR AND comparative study

The search domains were constructed as follows:

i. Total hip replacement (THR)

("Arthroplasty, Replacement, Hip"[Mesh] OR "Hip Prosthesis"[Mesh] OR "hip arthroplasty" OR "hip arthroplasties" OR "hip prosthesis" OR "hip prostheses" OR "Hip Replacement Arthroplasties" OR "Hip Replacement Arthroplasty" OR "Hip Replacement" OR "Hip Replacements" OR "tha"[tw] OR "Total Hip" OR "total hip arthroplasty" OR "total hip replacement" OR "total hip prosthesis" OR "total hip prostheses" OR "hip implant" OR "hip endoprosthesis" OR "hip endoprostheses" OR "artificial hip" OR ((hip OR hips) AND (Arthroplasty OR arthroplasty OR Replacement OR replacement OR "joint replacement" OR prosthesis OR Prosthesis OR prostheses OR Prostheses OR implant OR implants OR implanted)))

ii. Total knee replacement (TKR)

("Arthroplasty, Replacement, Knee"[Mesh] OR "Knee Prosthesis"[Mesh] OR "knee arthroplasty" OR "knee arthroplasties" OR "knee prosthesis" OR "knee prostheses" OR "Knee Prostheses" OR "Knee Replacement Arthroplasties" OR "Knee Replacement Arthroplasty" OR "Knee Replacement" OR "Knee Replacements" OR "Knee Replacement" OR tka[tw] OR "Total Knee" OR "Total knee" OR "total knee" OR "total knee arthroplasty" OR "total knee replacement" OR "total knee prosthesis" OR "total knee prostheses" OR "total knee" OR "knee prosthesis" OR "knee prostheses" OR "knee implant" OR "knee endoprosthesis" OR "knee endoprostheses" OR "artificial

knee" OR ((Knee OR knee) AND (Arthroplasty OR arthroplasty OR Replacement OR replacement OR "joint replacement" OR prosthesis OR Prosthesis OR prostheses OR Prostheses)))

iii. Comparative study

(randomized OR randomised OR comparative OR comparison OR comparing OR compared OR comparisons OR controlled study OR "Clinical Trial" [Publication Type] OR "Clinical Trials as Topic"[Mesh] OR "Comparative Study" [Publication Type] OR controlled OR RCT OR "Random Allocation"[Mesh] OR randomized OR randomised OR randomized clinical trial OR randomised clinical trial OR randomized controlled trial OR randomised controlled trial OR random allocation OR randomly allocated OR allocated randomly OR comparison OR controlled study OR comparative study OR clinical trial OR comparative trial OR single blind OR double blind OR triple blind OR trial[ti] OR trials[ti])

iv. Ceramic-on-Ceramic bearings

Ceramic OR Ceramics OR Ceramic* OR "Ceramic on ceramic" OR "Ceramic-on-ceramic" OR "Ceramic ceramic" OR "Ceramic-ceramic" OR Alumina OR "Aluminum oxide" OR "Alumina on alumina" OR "Alumina-on-alumina" OR "Alumina alumina" OR "Alumina-alumina" OR Zirconia OR Zirconium OR "Zirconium oxide" OR "Zirconia on zirconia" OR "Zirconia-on-zirconia" OR "Zirconia-zirconia" OR "Zirconia zirconia" OR "Zirconia-on-alumina" OR "Alumina-on-zirconia" OR "Zirconia-alumina" OR "Alumina-zirconia" OR "Hard-on-hard"

v. Modular femoral necks

(Modularity OR Modular OR Modular* OR exchangeable OR exchangeab* OR Segmental OR Segmental* OR Flexible OR Interchangeable OR Changeable OR Adjustable OR Replaceable OR Substitutable OR Variable OR Adaptable OR Modifiable OR Arrangeable OR Regulatable OR Expendable OR Switchable OR Transposable OR Swappable OR adapter OR "neck-modular" OR "neck modular" OR Interchangeab* OR Changeab* OR Adjustab* OR Replaceab* OR Substitutab* OR Adaptab* OR Modifiab* OR Arrangeab* OR Regulatab* OR Expendab* OR Switchab* OR Transposab* OR Swappab*)

vi. Monoblock acetabular components

(Monoblock OR Monoblock* OR "Mono-block" OR "Mono block" OR Monobloc OR Monobloc* OR "Mono-bloc" OR "Mono bloc" OR "One piece" OR "One-piece" OR "Single piece" OR "Single-piece" OR Nonmodular OR Nonmodular* OR "Non-modular" OR Molded OR "Molded-polyethylene" OR "Trabecular metal" OR "Tantalum cup" OR "Tantalum cups" OR "Porous tantalum" OR TMT OR Zimmer[tw] OR Hedrocel OR "Robert Mathys" OR Sulmesh[tw]) AND ([THR search term] OR "Acetabular cup" OR "Acetabular cups" OR hip OR hips OR "joint prosthesis" OR "joint replacement" OR "joint arthroplasty" OR "acetabular component" OR "acetabular cup" OR "acetabular socket" OR "acetabular implant" OR

"hip socket" OR "acetabular components" OR "acetabular cups" OR "acetabular sockets" OR "acetabular implants" OR "hip sockets" OR cup OR cups OR socket OR sockets OR component OR components))

vii. High-flexion

("High flexion" OR "High-flexion" OR "High flex" OR Flex OR "Increased flexion" OR "Increased outcome" OR "Increased function" OR ((high[tiab] OR higher[tiab] OR increased[tiab] OR increasing[tiab] OR increase[tiab]) AND (flexion[tiab] OR "Range of Motion, Articular"[Mesh] OR "Range of Motion"[tiab] OR Flexibility[tiab])))

viii. Gender-specific

("gender-specific" OR "gender specific" OR "sex-specific" OR "sex specific" OR "Sex Factors"[Mesh] OR "Sex Characteristics"[Mesh] OR "sex difference" OR "sex differences" OR "Sex Factors" OR "Sex Factor" OR gender OR genders OR gender* OR "gender-specific" OR "gender specific" OR "sex-specific" OR "sex specific" OR unisex OR "uni-sex" OR "female-specific" OR "female specific" OR "female anatomy" OR ("male"[ti] AND "female"[ti]) OR ((women[ti] OR woman[ti]) AND (men[ti] OR man[ti])))